

Claims

We claim:

1. A computer-implemented method for evaluating the performance of an image processing algorithm, the method comprising:
- performing one or more image processing functions on an image in response to user input;
- recording the one or more image processing functions, wherein the one or more image processing functions define an image processing algorithm;
- executing the image processing algorithm in response to user input, wherein said executing the image processing algorithm comprises executing executable code associated with each of said image processing functions defining the algorithm; and
- measuring an amount of time that elapses during said executing the image processing algorithm.
2. The method of claim 1, further comprising:
- displaying information indicating the amount of time that elapses during said executing the image processing algorithm.
3. The method of claim 1, further comprising:
- displaying information indicating a rate at which the image processing algorithm is capable of processing images, based on the amount of time that elapses during said executing the image processing algorithm.
4. The method of claim 1, further comprising:
- for each individual image processing function, measuring an amount of time that elapses during said executing executable code associated with the individual image processing function;
- wherein said measuring an amount of time that elapses during said executing the image processing algorithm comprises summing the amounts of elapsed time for each individual image processing function.

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5. The method of claim 4, further comprising:
displaying information indicating the amounts of elapsed time for each individual
image processing function.

6. The method of claim 1, further comprising:
receiving user input specifying an image on which to perform said executing the
image processing algorithm.

7. The method of claim 1, further comprising:
receiving user input specifying a plurality of images on which to perform said
executing the image processing algorithm;
executing the image processing algorithm on each of the plurality of images;
measuring amounts of time that elapse while executing the image processing
algorithm on each of the plurality of images;
determining an average amount of time required to execute the image processing
algorithm, based on said measuring the amounts of time that elapse while executing the
image processing algorithm on each of the plurality of images.

8. The method of claim 1, further comprising:
repeating said executing the image processing algorithm a plurality of times;
for each repetition of executing the image processing algorithm, measuring an
amount of time that elapses while executing the image processing algorithm;
determining an average amount of time required to execute the image processing
algorithm, based on the elapsed time measured for each repetition.

9. The method of claim 1, further comprising:
automatically generating a program that implements the image processing
algorithm.

10. The method of claim 9,

wherein the program calls the same executable code that executes when performing said executing executable code associated with each of said image processing functions defining the algorithm.

5 11. The method of claim 9,

wherein the program calls a portion of executable code corresponding to each of the image processing functions defining the algorithm;

wherein the execution time of each portion of executable code corresponding to an image processing function has a proportional execution time to the executable code associated with the image processing function that executes when performing said
10 executing executable code associated with each of said image processing functions defining the algorithm.

12. The method of claim 1, further comprising:
15 automatically changing the image processing algorithm in order to reduce the execution time of the image processing algorithm.

13. The method of claim 12, further comprising:
displaying information indicating suggested changes to the image processing
20 algorithm in order to reduce the execution time of the image processing algorithm;
receiving user input requested the suggested changes to be made automatically;
automatically making the indicated changes to the image processing algorithm.

14. The method of claim 12,
25 wherein one or more of the image processing functions have associated parameters;

wherein automatically changing the image processing algorithm comprises automatically changing a parameter value associated with an image processing function.

30 15. The method of claim 1, further comprising:

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measuring an amount of time that elapses during said executing the image processing algorithm for each of a plurality of image processing categories;

displaying information indicating the amount of time that elapses during said executing the image processing algorithm for each of the plurality of image processing categories.

16. The method of claim 1,
wherein the image processing algorithm comprises one or more of the following:
an image processing algorithm;
an image analysis algorithm; and
a machine vision algorithm.

17. A system for evaluating the performance of an image processing algorithm, the system comprising:

a processor;
a memory coupled to the processor which stores an image and an image prototyping program;

a user input device which receives user input;

wherein the image prototyping program is executable to:

perform one or more image processing functions on the image in response to user input;

record the one or more image processing functions, wherein the one or more image processing functions define an image processing algorithm;

execute the image processing algorithm in response to user input, wherein said executing the image processing algorithm comprises executing executable code associated with each of said image processing functions defining the algorithm; and

measure an amount of time that elapses during said executing the image processing algorithm.

18. The system of claim 17, wherein the image prototyping program is further executable to:

for each individual image processing function, measure an amount of time that elapses during said executing executable code associated with the individual image processing function;

wherein said measuring an amount of time that elapses during said executing the
5 image processing algorithm comprises summing the amounts of elapsed time for each individual image processing function.

19. The system of claim 17,
wherein the image prototyping program is further executable to automatically
10 generate a program that implements the image processing algorithm.

20. The system of claim 17, further comprising:
wherein the image prototyping program is further executable to automatically
change the image processing algorithm in order to reduce the execution time of the image
15 processing algorithm.

21. A memory medium comprising program instructions executable to:
perform one or more image processing functions on an image in response to user
input;
20 record the one or more image processing functions, wherein the one or more
image processing functions define an image processing algorithm;
execute the image processing algorithm in response to user input, wherein said
executing the image processing algorithm comprises executing executable code
associated with each of said image processing functions defining the algorithm; and
25 measure an amount of time that elapses during said executing the image
processing algorithm.

22. The memory medium of claim 21, wherein the program instructions are
further executable to:

for each individual image processing function, measure an amount of time that elapses during said executing executable code associated with the individual image processing function;

wherein said measuring an amount of time that elapses during said executing the image processing algorithm comprises summing the amounts of elapsed time for each individual image processing function.

23. The memory medium of claim 21, wherein the program instructions are further executable to:

automatically generate a program that implements the image processing algorithm.

24. The memory medium of claim 21, wherein the program instructions are further executable to:

automatically change the image processing algorithm in order to reduce the execution time of the image processing algorithm.

25. A computer-implemented method for evaluating the performance of an algorithm, the method comprising:

recording one or more functions in response to user input, wherein the one or more functions define an algorithm;

executing the algorithm in response to user input, wherein said executing the algorithm comprises executing executable code associated with each of said functions defining the algorithm;

measuring an amount of time that elapses during said executing the algorithm;

displaying information indicating the amount of time that elapses during said executing the algorithm.

26. A computer-implemented method for evaluating the performance of a machine vision algorithm, the method comprising:

